

**What is claimed is:**

- Pub A1*
1. A safety syringe comprising:
- a) an interchangeable needle;
  - b) an elongated barrel having first and second ends, the interchangeable needle attached to a first end of the barrel;
  - c) a plunger sized and shaped to be received in the second end of the barrel and to be movable therein;
  - d) a spring at least partially compressed within the barrel and the interchangeable needle to bias the interchangeable needle within the barrel; and
- wherein the plunger is moved within the barrel applying force to the interchangeable needle and causing the spring to retract the interchangeable needle within the plunger.
2. The syringe of claim 1 further comprising:
- a) retainer catches having flexible supports on the base.
3. The syringe of either claims 1 or 2 further comprising:
- a) an integral sacrificial seal on the base.
4. The safety syringe of any of claims 1 through 4 in which the needle further comprises an interchangeable needle head, which is adapted for mating insertion with a needle hub associated with the first end of the barrel.
5. The safety syringe of claim 4 in which the interchangeable needle head has a portion with threads thereon adapted for mating with the threads of the interchangeable needle head and for screwing the interchangeable needle head to the barrel and wherein the plunger has a rupturable web on one end through which the needle hub is forced when the spring triggers.
6. The syringe of claim 5 further comprising a circular groove on the needle hub for guiding the needle head into the syringe.

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7. The syringe of claim 5 wherein the needle head is formed to lock behind a needle catch in the plunger.
8. The syringe of claim 5 further comprising a needle guard releasably affixing the needle and needle head therein.
9. A method for operating a safety syringe with an interchangeable needle selected from a plurality of needles having differing characteristics, the method comprising:
- a) selecting a first needle from the plurality of needles ;
  - b) associating the first needle with a syringe comprising a needle assembly, a barrel and a plunger ;
  - b) injecting a fluid from the syringe;
  - c) moving a plunger having a seal through the elongated barrel into contact with a movable base in the elongated barrel;
  - d) forcing the base in the direction of the needle assembly such that a spring on the needle assembly triggers, thereby projecting the needle into a hollow of the plunger.
10. The method of claim 9 further comprising capturing the needle hub and the needle within the hollow of the plunger and locking the needle hub and plunger within the barrel.
11. The method of claims 9 or 10 further comprising guiding the needle head into the syringe by using a circular groove on the needle assembly.
12. The method of claims 9 through 11 further comprising the steps of :
- a) applying force to a thumb push of the syringe transmitting a force along the plunger to the base, which is deformable and coupled to supports;
  - b) continuing the application of force until the supports flex and close forcing a flange to move along a wall of a needle assembly allowing forward movement of the deformable base and the needle therein and compression of an energy storage means;

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c) deforming the deformable base causing the flange to lose contact with the deformable base, which thereby releases energy stored within the energy storage means to project the interchangeable needle into a hollow of the plunger;

d) locking the interchangeable needle in the plunger via a capturing means;

e) revealing a biohazard label viewable through the barrel; and

f) locking the plunger within the barrel to form a liquid tight seal between the plunger and the barrel.

13. An interchangeable needle safety syringe formed by a process comprising:

a) threading a needle hub having a needle into a needle assembly, the needle assembly defining a passageway and including a spring thereon such that the needle hub is received in the passageway and the spring is partially compressed on the needle assembly;

b) inserting the needle assembly in a base of a hollow barrel, the base constructed and arranged to releasably retain the needle assembly;

c) biasing the base with the spring preventing unintentional movement within the hollow barrel; and

d) inserting a plunger having a seal within the hollow barrel until the plunger mates with the base.

*7 add B<sup>2</sup>*